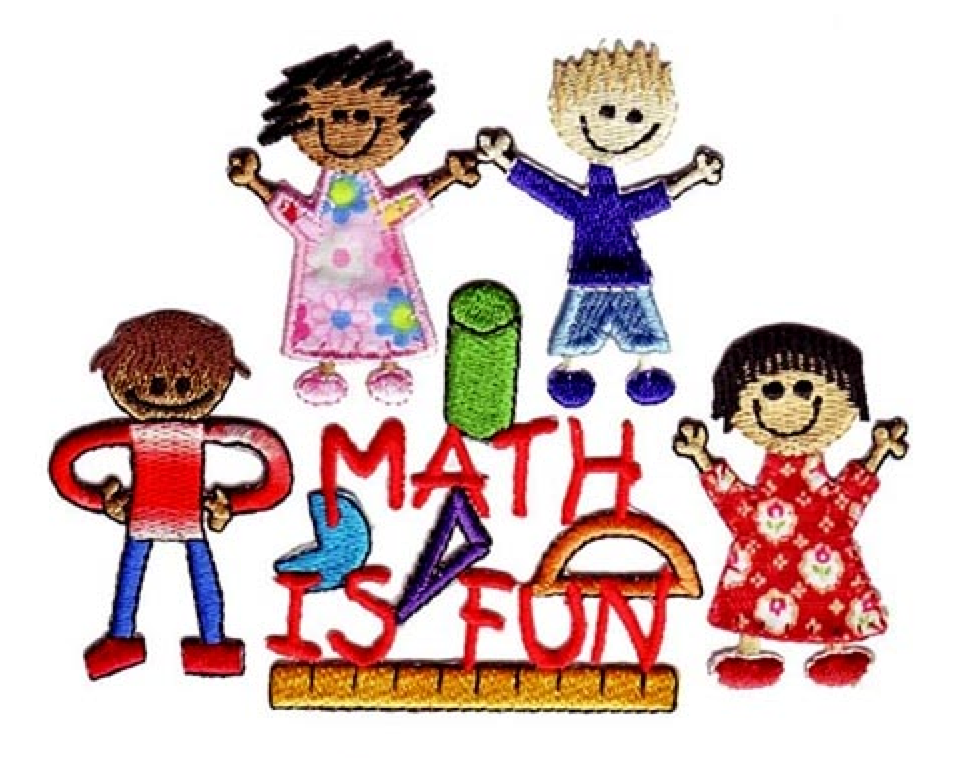
Valley Language Schools

Mathematics Department



Mathematics Booklet
6th Primary
1st Term





Revision

Remember:

1- The area of the square= side ×itself= S × S

2- The S.L = $\sqrt{area}$

The P. of the square = 4 × side = cm

S.L = $\frac{P}{4}$

3- The area of the rectangle = L × w = cm^2

L =$\frac{area}{w}$, W = $\frac{area}{L}$

4- The P. of the rectangle = 2× (L+W) =……cm

L = $\frac{p}{2} - w\ cm$, w=$\frac{P}{2} - l\ cm$

5- The P. of the equilateral triangle =S+S+S = 3×side length

S.L = $\frac{P}{3}\ cm$

6- The sum of measure of interior angels of any triangle=180˚

7- The sum of measure of the central angels accumulated at the center of the circle = 360˚

8- The circumference of the circle = π D or =2 πR

Where π=$\frac{22}{7}$ or 3.14

9- D= 2 × radius = $\frac{C.of\ the\ circle}{\pi}$

10- The radius =$\frac{1}{2}$ diameter = $\frac{C.of\ the\ circle}{2\pi}$

11- π= 3.14 or $\frac{22}{7}$ = $\frac{C.of\ the\ circle}{D}$ = $\frac{C.of\ the\ circle}{2r}$



Unit One The Ratio

The meaning of the ratio:

1) The ratio is a method to compare between two or more quantities of the same unit and quantities
2) The ratio between two numbers $= \frac{1st\ number}{2nd\ number} = \frac{antecedent}{consequent}$

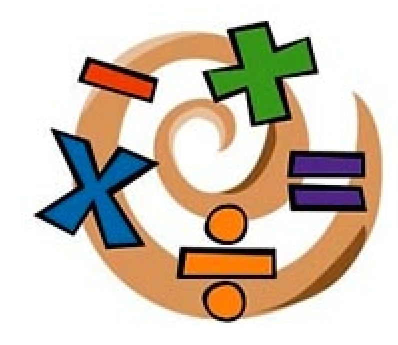
Note: $2:5 = \frac{2 \dashrightarrow 1st\ no.}{5 \dashrightarrow 2nd\ no.}$

$2:5 \neq 5:2$

3) The ratio has no unit

The properties of the Ratio:

a) Since the ratio is a fraction then we must put its terms in the simplest form
b) The terms of the ratio must be in the form of whole numbers i.e. no decimals and no fractions.
c) In the ratio there is no different unit.
d) In the ratio they must be the same unit.



Exercise: Put the following ratios in there simplest form:

a) 25 : 75
b) 48 : 18
c) 20 : 150
d) 280 : 3500
e) 30 : 60 : 75
f) 32 : 34 : 48
g) 16 and 48
h) $\frac{24}{72}$

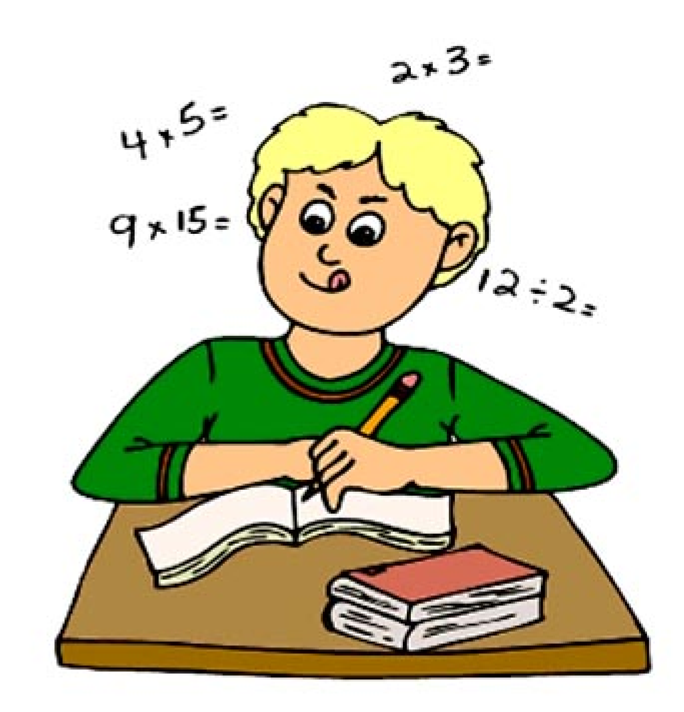
Property (2)
The two terms of the ratio should be two whole numbers.

Exercise: simplify the following (remember (no dec.))

a) 1.5 : 3.6
b) 0.18 : 0.33
c) 2.5 : 3.5
d) 1.2 : 24
e) 0.1 : 1 : 0.001
f) 4.5 : 9
g) 0.2 : 0.24 : 0.006
h) 1.8 : 1.6 : 1.2

Exercise: Reduce the following ratio (remember no fraction)

1) $\frac{1}{3} : \frac{5}{4}$
2) $\frac{3}{7} : \frac{22}{7}$
3) $\frac{5}{8} : \frac{5}{3}$
4) $3 : \frac{2}{3}$
5) $\frac{1}{2} : \frac{1}{4} : \frac{1}{8}$
6) $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$
7) $\frac{2}{3} : \frac{3}{4} : \frac{1}{2}$
8) $\frac{1}{2} : 2 : \frac{1}{4}$
9) $1\frac{2}{3} : 2\frac{1}{2}$
10) $\frac{3}{8} : 2\frac{1}{4}$
11) $1\frac{2}{3} : 3\frac{3}{4}$



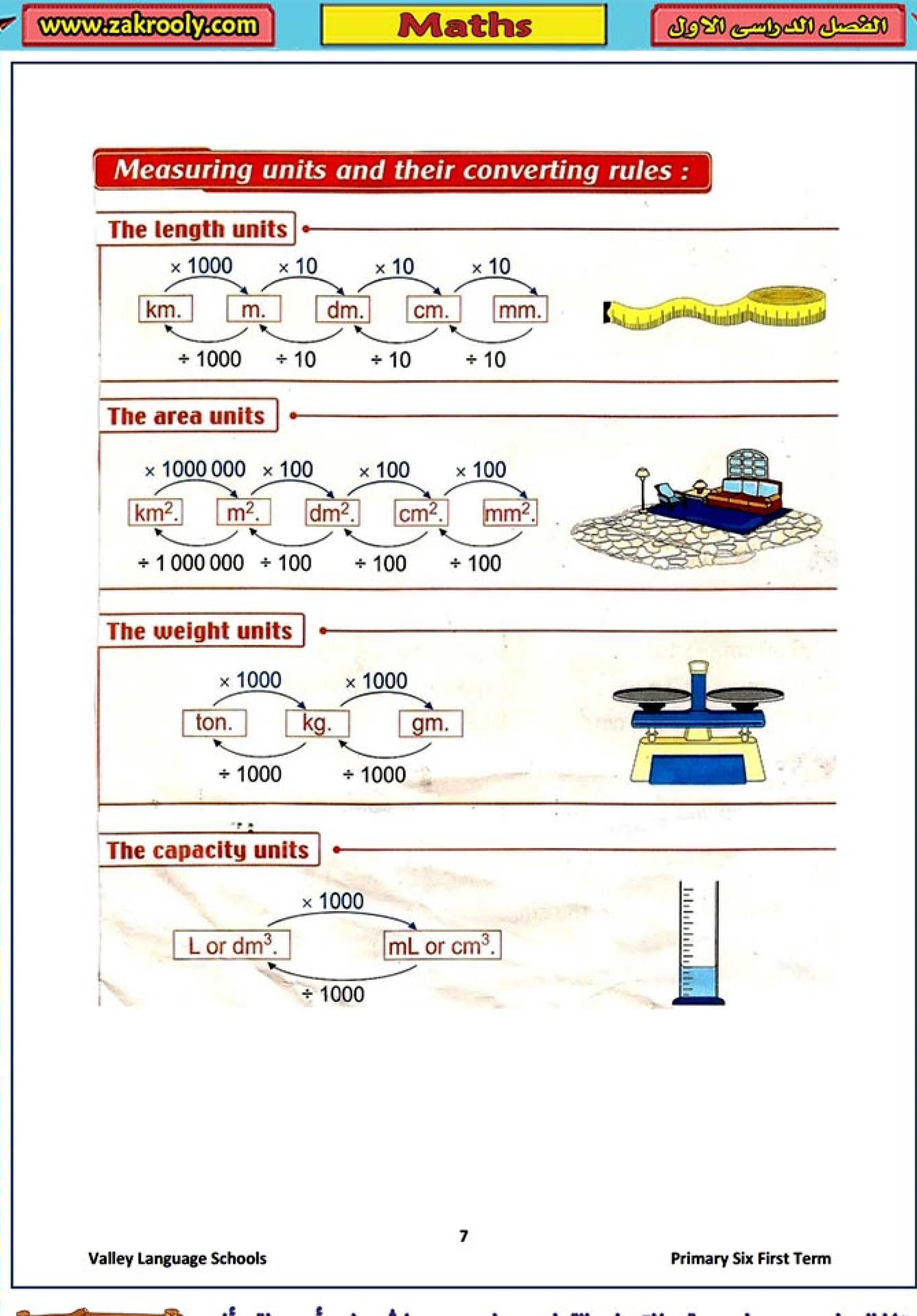
Exercise: Put the following ratio in the simplest form :

1) $3.2 : \frac{5}{8}$
2) $\frac{1}{3} : 0.2$
3) $2.4 : 2\frac{2}{5}$
4) $1\frac{1}{4} : 1.75$
5) $1.5 : 1\frac{3}{4}$
6) $1\frac{3}{5} : 2.2$
7) $\frac{1}{2} : 0.75 : \frac{1}{4}$
8) $\frac{1}{2} : 0.25 : \frac{2}{3}$









Measuring units and their converting rules :

The length units

km. → m. → dm. → cm. → mm.

× 1000, × 10, × 10, × 10

÷ 1000, ÷ 10, ÷ 10, ÷ 10

The area units

km^2. → m^2. → dm^2. → cm^2. → mm^2.

× 1000 000, × 100, × 100, × 100

÷ 1 000 000, ÷ 100, ÷ 100, ÷ 100

The weight units

ton. → kg. → gm.

× 1000, × 1000

÷ 1000, ÷ 1000

The capacity units

L or dm^3. → mL or cm^3.

× 1000

÷ 1000

year → month (÷ 12 back) , week → day (÷ 7 back)

day → hr. → min. → sec.

× 24, × 60, × 60

÷ 24, ÷ 60, ÷ 60

Units of cultivated lands

feddan → kirat → sahm

× 24, × 24

÷ 24, ÷ 24

The money units

L.E. → P.T.

× 100

÷ 100

Note:

1) We must change from the greatest unit to the smallest one

2) $dm^2 = 100\ cm^2$

3) $m^2 = 10000\ cm^2$

4) $m^2 = 100\ dm^2$

Find the ratio:

1) $1.2\ m^2 : 90\ dm^2$

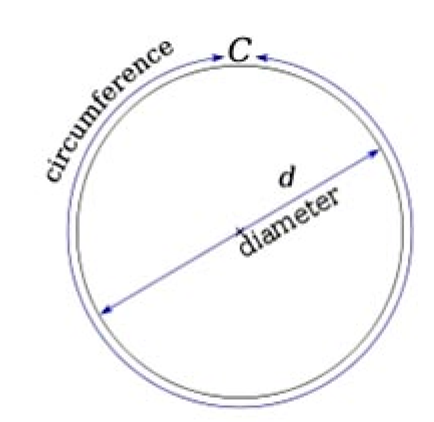
2) ½ hour : 45 mins

3) ¾ year : 15 months

4) 3 feddans : 60 Kirats



5) 150 cm^2 : ¾ m^2
6) L.E 7 ½ : p.T 150
7) 2 ½ mins : 180 sec
8) 2 Kirats : 18 Sahms
9) 0.6 Km : 250 m.
10) 25 dm : 500 cm : 7.5 m



Study hard:

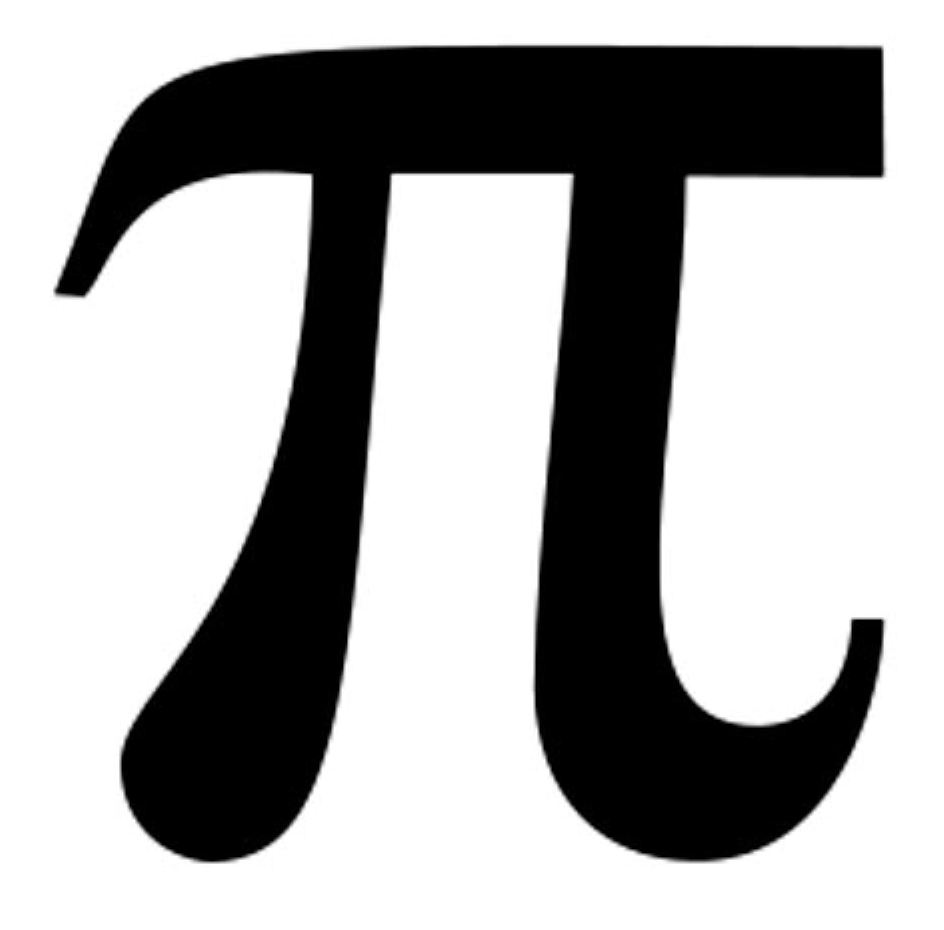
1) The ratio between any two sides of a square = 1: 1
2) The ratio between any two sides of a rhombus = 1: 1
3) The ratio between the side length of a square and its perimeter = ¼
4) The ratio between the side length of a rhombus and its perimeter = ¼
5) The ratio between the side length of the equilateral triangle and its perimeter = 1/3
6) The ratio between any two sides of the equilateral triangle = 1:1
7) The ratio between the circumferences of two circles is the ratio between their diameter or radii i.e. D_1 : D_2 or R_1 : R_2
8) The ratio between the diameter of a circle and its circumference = 1 : ∏ = 1 / ∏

But circumference of a circle and its diameter = $\pi : 1 = \pi$ i.e. 22/7

9) The ratio between the radius of a circle and its circumference = $1 : 2\pi$

i.e. R : circumference of the circle = $1 : 2\pi$

But circumference of circle : R = $2\pi : 1 = 2\pi$



Revision (1)

1) Complete:

1) 1 ¾ : 3 ½ =
2) 300 gms : 1 ½ Kg =
3) ¼ hour : 20 minutes
4) P.T 50 : L.E 1 ½
5) 18 hrs : one day
6) 1.5 Km : 3 Km
7) 24 m : half an hrs
8) 3 1/8 : 6.25
9) ¾ : 1.5 : ½
10) In the ratio 5/9 the 1st term is .... And the 2nd term is ....
11) The ratio between the perimeter of the equilateral triangle and its side length is .... :..............
12) The side length of a square equal s 4 cm then the ratio between its side length and its perimeter is

.... : ....

13) The circumference of a circle : its radius =

.... : ....



Revision (2)

Choose the correct answer:

(1) 16 : 48 = 1 : .... (2,4,5,3)

(2) ½ : ⅓ : ¼ = ...

(2:3:4), (4:3:2), (6:4:3) , (3:4:2)

(3) The diameter of a circle: its circumference =.....:...

(1:2∏, 1: ∏, ∏:1,2∏:1)

(4) 16 Kirats : 1 Feddan = ... : ....

(16:1), (2:3), (3:2),(8:3)

(5) 18 hrs : one day in the simplest form =...............

(2:9),(1:3),(3:4),(4:3)

(6) The ratio is ....

(7) 150 gms : a quarter of Kg is ....

(1:5),(2:5),(3:5),(4:5)

(8) The ratio between 12 Kirat to 1 ½ Feddan is.......

(4:1),(1:3),(3:1),(12:1.5)

9) 3 1/5 : 9.6 = ... :... (1/6 , 3/2 , 1/3 , 2/3)

10) 75 cm : 2 ¼ m = ...:......(1/3 , 3 , 1/3 cm , 1/3 m)



11) if the area of a rectangle is 4m cm^2 and its width is 6 cm then the ratio between its length and its width is ....

(8:1   4:3   3:4   1:8)

12) ¼ : 0.75 = 1: ....

(2,3,4,5)

13) A triangle whose sides length are 30 cm , 40 cm and 50 cm then the ratio between the length of the smallest side and its perimeter is ....

(1:3   1:4   2:3)

14) The ratio between the side length of two squares is 3:5 then the ratio between their perimeters is ....

(1:4   3:20   3:5)

15) If a:b = 2:5 then a/ a+b = ...

(2:5   2:7   3:7   7:2)



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Some problems about the ratio:

1) Ahmed has 15 L.E , he spent 725 P.T . Find :
a) Money spent : total money
b) Money left : money spent
Then complete:

Money spent = $\frac{......}{......}$ money he has

Money left = $\frac{......}{......}$ money he has

2) A rectangle with length 2 meters and width 120 cm . Find :
a) L : w b) w : p c) L : p

3) A rectangle with perimeter 6.4 m , if the width is 120 cm ,
Find :
a) L : w b) L : p c) w : p

Then complete L = ……………. Width

4) The total number of boys and girls in a certain school is 480 if the number of boys 320, find :

a)number of boys : number of girls

b) Number of girls: total number

c)The total number : number of boys



5) If a is third b ,Then a : b = …… : …….. and b : a = …..: ……..

6) If Ahmed is half Noha then

Ahmed = …../….. Noha

Noha ……/……. Ahmed

7) If X three quarter Y then X :Y=…..:…..

8) Mona`s salary is L.E 1200. she spent ¾ her salary and saves the remainder then complete :

a)money spends : her salary

b) money saves : her salary

c) money spends : money saves



Some application about the ratio:

The ratio between the number of boys and the number of boys to the number of girls in a certain school is 9 : 7 ,if the number of boys is 378 find the number of girls

The ratio between the height of building and the height of Cairo tower is 5/18 .If the height of Cairo tower is 180 m. then find the height of the building.

T he ratio between the angles of triangle is 5 : 6 : 7 ,if the measure of the smallest angle is 50o.Find the measure of other two angles

ABC is a triangle when the ratio between the lengths of AB : BC : CA is 4 :3 : 5 if BC = 6 cm. ,Find the perimeter of this triangle .

If Mona`s weight: Rana`s` weight:Noha`s weight is 5 : 9 : 13 if Rania`s weight is 45 K.g . Find their total weights



Application and the ratio between three numbers

Study hard:

The keywords of sum (+)	the keywords of difference (-)
-Sum, total	-difference
-Altogether	-increase than
-Sum of measure	-decrease than
-divide-distribute	-exceeds than
-Perimeter	-less than –more than

Some exercises about sum(+):

1)The sum of two amounts of money is L.E 1500 .If the ratio between them is 2:3 ,find each of the two amounts.

----

2)Two wire pieces the ratio between their lengths is 5:9 .If their total is 126 m. ,find the length of each.

----

3)Divde L.E 4500 in the ratio of 2 : 3 : 4 .

4)Distribute L.E 3600 between Mostafa and Ali such that Ali take twice Mostafa.



5) The perimeter of a rectangle is 660m. ,if the ratio between its two dimensions is 5:6 .Find its area.

6) The ratio between the measure of angles of a triangle is 3 : 7 : 8.Find the measure of each angle and determine the type of the triangle according to its angles.

7) The perimeter of a triangular piece of land is 120 meters,find the length of each side ,If the ratio between them is 4 : 3 : 5 .

8) The ratio between what Soha has to what Heba has is5 : 7 ,if both of them have L.E 108 .Find what each has.

9) There are 1200 students in a amixed school if the number of girls is 3/4 the number of boys.Find the number of each.

10) The ratio of three numbers is 2:3:6 if the sum of the 1^{st} and 3^{nrd}





Some exercises about the keywords of difference (-):

1) If the ratio among the ages of Nahla : Rania :Abeer is 3 : 5: 8 .If the difference between the age of Rania and the age of Abeer is 12 years find the age of each
2) The ratio between the production of the three factories is 9 : 7 : 11 and the production of the third factory is exceeds the first one by one thousand Tons Find the production of each factory
3) ABC is a triangle in which AB:BC:AC =6:5:3 ,Find :
   -The length of AB and BC given that CA =48 cm
   -The length of each given that the length of AC less than the length of BC by 16 cm.

4) The ratio between the length and the width of a rectangle 8 :5 if yhe width decreased than the length by 12 cm perimeter .

Revision sheet

Choose the correct answer :-

1) If the age of Mohamed is twice the age of Ali`s age is ....Mohamed age (1:2,2:1,3:1,1:3)
2) The ratio between three numbers is 3:4:7 if their sum is 70 the greatest number is ......(15,45,20,14)
3) Two wires the ratio between their lengths is 75 cm the length of the second wire is .....m (1,100,10)
4) If the ratio among the measure of the angles of a triangle is 1:2:3 then the measure of the smallest angle =......(10^o,30^0,45^0,60^0)
5) The ratio between the length of a triangle and its width is 7:4 if its perimeter is 44m then its area equals ($224cm^2$,$112cm^2$,112cm)
6) The ratio between the height of Ali and that of Hoda is 9:8 if the difference between their height is 20cm then the height of Hoda is .....(180cm,160cm,1



The combined Ratio

1) If A : B = 3 : 5 and B : C = 4 : 7 Find A : B : C ?

2) A:B $= \frac{7}{8}$ and B :C $= \frac{5}{6}$ then Find A : C = …… : ……

3) If $A = \frac{2}{3} B$ and $C = \frac{4}{3}$ B Find A : B : C ?

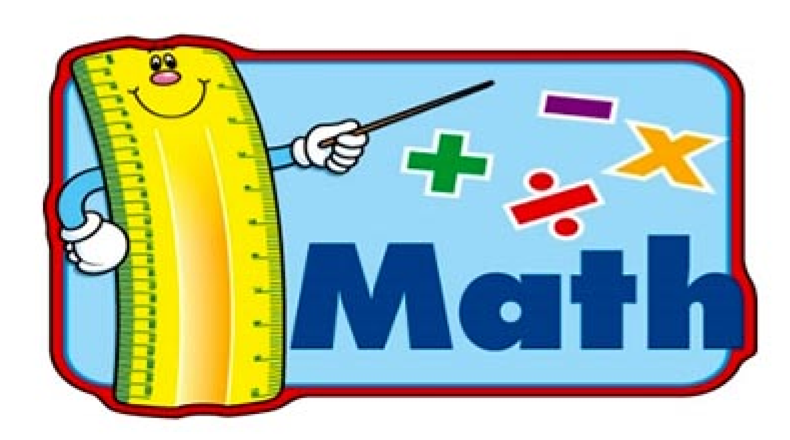
4) If $\frac{A}{B} = \frac{9}{8}$ and $\frac{A}{C} = \frac{6}{5}$ Find B : C ?

5) If $A = \frac{7}{9}$ and C = A + B Find A : B : C ?

6) If $A = \frac{5}{8} C$ and B = C - A Find A : B : C ?

7) If A : B = 5 : 12 and A + B = 68 then Find A ?

8) $X = \frac{2}{3}$ Y and $Y = \frac{4}{3}$ Z , Z - X = 210 then Y = ……..



Some Problems

1) Find the ratio among the tallness sara : Noha : Ola If the tallness of sara to the tallness of Noha 2 : 3 and the tallness of noha to the tallness of ola equal 6 : 5 ?

2) A fruit seller has three kinds of fruits (banana-grapes-guava)of the ratio between the weight of banana to the weight of grapes is 2 : 3 and the ratio between the weight of grapes to guava is 1 : 2 Find the ratio between their weights ?

3) If Ahmed saved $\frac{3}{5}$ that of Mostafa saved and Mostafa saved $\frac{1}{3}$ that of Ali saved. If Mostafa saved L.E 150 less than Ali Find the total saving?

4) If kamal has of $\frac{3}{4}$ Ramzy's money and Hany has $\frac{2}{3}$ of ramzy's money Find the ratio between Kamal: Ramzy: Hany?

5) If the weight of Noura: the weight of hend = 2 : 3 and the weight of hend to the weight Ola = 3 : 5 Find the ratio between them ?



The Rate (Average)

Remember

The ratio is a comparing method between two or more quantities of the same unit and type .

The rate: is a ratio between two quantities of different kinds and unit.

Rate = the unit of 1st quantity / (per) each unit of the 2nd quantity $\frac{first\ unit}{second\ unit}$

Some Exercises

1) A car covers 360 Km in 5 hours Find the average speed of this car?
2) Two cars one of them covers 225 Km in 3 hours , another car covers 350 Km in 4 hours Which is faster ?
3) A car consumes 20 liter of benzene to cover a distance 250 Km Calculate the rate of consumption of the car of benzene?



4) A tractor ploughs 6 feddan within 3hrs. And another tractor ploughs 10 feddans within 4 hrs. Which is better?

5) A machine produced 500 meters in 2 hours and half find the average of production?

6) A computer colored printer prints 12 papers ever 4 min. find the rate of work of this printer?

7) A water tap is leaking 20 liters of water in 5 hrs. find the leaking rat of water per hour.

8) A factory (A) produces 600 lamps in 40 hrs. , another factory (B) produces 700 lamps from the same kind in 5 hrs. Whish factory has more production rate.



Revision

On unit one

Choose the correct answer:

a) If a : b = 2 : 3 and b : c = 12 : 7 then a : c =	(2 : 7 , 3 : 7 , 8 : 7 , 3 :12)
b) A tractor ploughs 14 feddans in 3.5 hrs. then the rate of performance of the tractor = ………feddans/hr.	(¼, 4, 10.5, 7)
c) The ratio 5/13, its 2nd term is	(5 , 13)
d) The ratio between the side length of the rhombus and its perimeter is	(1/4, 4 : 1 , 1 : 1)
e) $\frac{3}{2} : \frac{7}{3}$ =	(3 : 7 , 9 : 14 , 7 : 3 , 3: 2)
f) If Mohamed spends 15 L.E within 3 days then Mohamed spends …..L.E./day	(45 , 18 , 5 , 12)
g) The area of a rectangle is 40 cm² and its length is 0.8 dm then the ratio between its L : W = …… : ……	(5 : 8 , 8 : 5 , 5 : 1)
h) The ratio between three numbers is 3 : 4 : 7 and their sum is 70 then the greatest one is …..	(15 , 35 , 20 , 14)
i) If a : b = 5 : 3 and a-b = 8 then b=….	(6 , 8 , 10 , 12)
j) 800 grams : 1.6 kg =	(1 : 2 , 2 : 1 , 5 : 1 , 1 :3)
k) The ratio between the circumference of the circle and its diameter length =	(1 : 3 , 22 : 7, 1 : 4 ,7 :22)



Complete

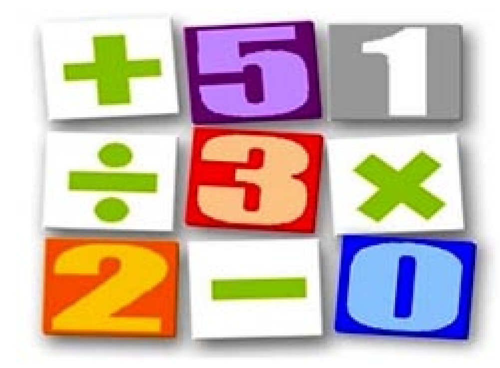
1- The comparing between 2 different quantities in kind is …………….

2- $\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$ **= 6 : ….. : ……**

3- ABC is a triangle where AB : BC : CA is 7 : 5 : 4 if AC = 8 cm then the perimeter of this triangle = ……..

4- The two terms of the ratio are multiplied by non-zero number the value of the ratio ……..

5- If the ratio between the perimeter of a rectangle and its length = 8 : 3 if the perimeter = 64 cm then its length equal ……… cm





Exam on Unit One

Complete:

A) 100 gm: 1/4 kg

B)The ratio between the side length of a square ang its perimeter=....:.....

c) The ratio between a number and another number =...../.....

d)If Hassan spends L.E60 within three days then,the rate of what he spends per day=..........

Choose:

a)0.75 Kirats :16 Sahms =....:.... (3:54 , 25:125 ,9:8 ,8:9)

b)The (ratio , rate , Area)is comparing between two quantities of different kinds.

c)If a:b =6:7 and b:c =2:3 then a:c=...:...

(1:21 , 7:4 , 6:3 , 4:7)

d)0.84 :2 1/3 =....:...(42:115,9:25,25:9)

e) The ratio between the circumference of a circle it`s diameter length=...: .... (Π: 2 , 1:π , π:d , π:1)



3-A)- A plough for agricultural land ,ploughs 10 Feddans within 4 hours. Find the rate of work of this plough.

B)-The ratio between the length and the width of a rectangle is 9:5 .If the perimeter of the rectangle is 56 meters. Find out the length and the width.

4-A)-The ratio among the height of three buildings is 3:5:7if the height of the first building is 18 meters. Calculate the height of the second and the third building

B)- A rectangle with width 3.5 cm and its length 7 cm. Find the ratio between the width to area .

5-A)- If the ratio among the share of Hani and Khalid and Ahmed is 5:6:9 and if the difference between the share of Ahmed and Hani is L.E 400.Find the share of each.

B)-In a class the number of boys is 25 pupils and the number of girls is 20 pupils. Find the ratio between the No. of boys to the No. of all pupils in the class.



Unit Two

The Proportion

Definition:

The proportion is an equality of two or more ratios

i.e. 1/2 =3/6 =4/8 = 10/20 =7/14

Properties:

1) The value of the proportion doesn`t change

when we multiply or divide its 2 terms by the same number .But its value changes if we add or subtract a certain number from the 2 terms.

2)In the proportion the product of extremes = the product of means



i.e 3/4 , 9/12   2/3 ,8/15

4x9 = 3x12=36   2x15 ≠ 3x8

Proportion   not proportion

3 ,12 are called extremes and 4 , 12 are called means.



Revision

1) The rate is ………………………………………

2) The proportion is…………………………………

3) In the proportion the product of …… = the product of ……

4) The fourth proportion of 5.8 and 15 is …..

5) If the numbers 2,4,x and 12 are proportional then X=…….

6) 2/5 =…./17.5

7) The first proportion in 18,6,9 is ……

8) X /40=0.35 ,then x=…….

9) If a/b=c/d ,then ……x…..=….x……

10) A runner covers 10 Kms in 2 1/2 hrs ,then it covers……….km in 5 hrs

11) 4/x = 0.8 then x =……

12) 4(x+9) = 44 then x =……



Some applications about the proportion:

1) A car consumes 20 benzene to cover 180 Km.How many litre of benzin does the car consumes to cover 540 Km.
2) The price of15 litres of liquid soap is L.E 7.5 ,Find -The price of 45 litres of the soap.

   -The number of litres of price L.E11.5

3) A tractor ploughs 14 feddans in 3.5 hrs ,Find:

   -The number of feddans that the tractor ploughs in 4.5 hrs.

   -The time needed to plough 30 Feddans

4) The height of house is 18 m. in a certain time its shadow length is 4m. ,Find the height of the tree if its shadow length is 3m. at the same time.





Revision

1) The rate is ……………………………………….
2) The proportion is……………………………….
3) In the proportion the product of …… = the product of ……
4) The fourth proportion of 5.8 and 15 is …..

5) If the numbers 2,4,x and 12 are proportional then X=…….

6) 2/5 =…./17.5
7) The first proportion in 18,6,9 is ……

8) x/40=0.35 ,then x=…….

9) If a/b=c/d ,then ……x…..=…x……

10) A runner covers 10 Kms in 2 1/2 hrs ,then it covers………km in 5 hrs.

11) 4/x =0.8 then x=……

12) 4(x+9)=44 then x =…….



The proportional division

The proportional division means to divide any thing (money , land , weights) on persons propotional to their share in capital.

Some Exercises

1. ABC is a triangle in which m(<A) $=\frac{2}{3}$, m(<B) and m(<c) =2m(<A) find : the measure of each angle.
2. A train carries 700 passengers if the number of passengers in the 1st class $=\frac{2}{3}$ that of the 2nd class and the number of passengers of the 2nd class $=\frac{4}{5}$ that of the 3rd find: the number of each class.
3. Three persons started a business , the 1st paid $\frac{5}{6}$ of what of the 3rd and the 2nd paid $\frac{7}{9}$ of what of the 3rd if the 1st share in profit was LE3000 find the shares of the others.
4. A father distribute LE 225 among his three sons the share of 1st son was third the sum and the ratio between the share of the 2nd to 3rd is 2:3 find: the share of each.



5. A father died and lift LE 63000 to be distributed among his 3 sons the 1st share was third the money and the ratio between the 2nd and 3rd is 3:2 calculate the share of each.

6. A man died and lift a piece of land for building its area = 17 kirats they built on area equals 5 kirats and the remainder is distributed among his son and daughter in the ratio of 2:1 find: the share of each.

7. Three persons started a business the 1st paid $\frac{3}{5}$ of that of the 2nd and the 2nd paid $\frac{2}{3}$ of that of the 3rd at the end of the year the profit of the 2nd was less than that of the 3rd by LE 700 find: the share of each

8. Three people set up a commercial business for flowers. they paid LE 6ooo , 4800 and LE 7200. Respectively the profit of the 1st in profit was LE 420 more than that of the second find: the profit of each.

9. Three persons started a business they paid LE 15000 ,25000 and 20000 respectively at the end of the year the net profit was LE 5520 calculate the share of each in profit.

Mathematics Evaluation

A. Complete:

1. 150 gm : A quarter of kg = ---------------:--------------
2. A water tap is leaking 30 litres of water in 6 hours then leaking rate of water per hour = --------
3. The ratio between the side length of the equilateral triangle and its perimeter = ----:---
4. If the ratio between Kamal to Ayman is 2:3 and the ratio between Ayman to Hosam is 5:4 then the ratio between Kamal : Hosam = ---------:--------

4b) The rate is -------------------

B. Choose:

1. 8 hours : $3\frac{1}{3}$ days = -----:----- (1:25 , 1:10 , 8:5)
2. If the ratio between the measurements of the angles of a triangle is 1:2:3 then the measure of the smallest angle = ------ (10°C , 90°C , 30°C)
3. The ratio of 1.2:1.5:2.4 = ---:---:-- (4:5:8 , 12:15:24 , 6:7.5:12)
4. The (rate , ratio ,perimeter)is comparing between two similar quantities and of the same unit.



5. The ratio between the diameter of a circle and its circumference = ---:--- ($1:\pi$, $\pi:d$, $\pi:1$)

A) The area of rectangle = 48cm2 and its width = 6 cm. Find the ratio between the length and the width of rectangle.

B) The ratio among the money of Hoda : Ahmed : Samah is 6 : 5 : 2

If Hoda's money is more than samah's money by 200 L.E. Calculate the share of each.

6. A) A school has 720 pupils. If the ratio between the number of boys to the number of girls is 5 : 7. Calculate the number of boys and girls.

B) A rectangle of length 3 meters and width = 120cm

Find the ratio between the width of the rectangle and its perimeter.

The Drawing Scale

- The scale is a ratio between the map length to the real length.

M.L : R.L = M.L : R.L

And both length must have the same unit.

- The scale means that every one centimeter represents how many (Km or m) in reality
- The drawing scale is used for

1- Reduction (minimization) → to draw a map for cities

In this case drawing scale < 1 i.e. M.L< R.L

2- magnification (enlargement)

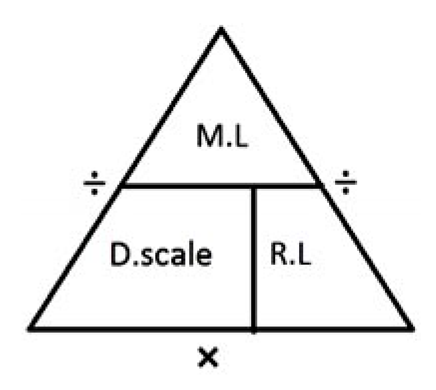
(Lens of the microscope)

In this case drawing scale > 1

i.e. M.L > R.L

Note the M.L in all in all the cases in cm.





1- The D.Scale = M.L : R.L = M.L / R.L

2- D.L = D.scale × R.L



3- R.L = M.L / D.scale

Note : we must change from the greatest unit to the smallest one.



Some Exercises

1) The distance between two cities is 45Km if the distance between them on a map is 5 cm find the scale of this map then complete:

Every 1cm on the map represents…….Km in reality

2) In the photo of the pyramids its height in the picture was 4cm if its real height is 160m. find the drawing scale then complete :

Every1cm on the map represents……meterin reality.

3) A lens is used to enlarge a small a small insect of real length 0.5 mm if its length after magnification is 6cm

Find the ratio of magnification

4) the scale of a certain map was 1 : 400000 if the distance between 2 cities is 8 cm find the real length between them .

5) The drawing scale of map is 1 : 1000000 if the real distance between two cities is 500km.Find the distance between them on this map

6) A map was drawn with a scale of 1:3000 find the real area of rectangular play ground its map dimensions are 3.6cm and 2cm. and find its real perimeter.

7) A magnified picture of an insect was magnified by a scale 200:1 Find the length of the insect in the picture if its real length is 0.14 mm

8) A magnified picture of an insect was taken with an enlargement ratio of 100: 1 if the length of the insect in the picture is 2.5cm Find the real length of the insect.



9) The distance between 2 cities on a map is 10cm and the real distance between them is 120Km

Find: 1- the drawing scale of this map

2-The real distance between another 2 cities if the distance between them on the same map = 6cm.





Revision on drawing scale.

Complete the following:

1) the drawing scale = -------
2) If the drawing scale of a certain map is 1: 4000000 this means that every one cm. on the map represents ....Km in reality
3) If the length in drawing is 3 cm. and its length in reality is 12m then the drawing scale = ...
4) If the drawing scale< 1 this means ....
5) If the drawing scale> 1 this expresses =.......
6) The real length = ...
7) If the distance between two cities on a map is 3 and the real distance between them is 9Km then the drawing scale =........
8) The drawing scale is 1 : 300 and the real length is 30 m then the drawing scale =.........



The percentage (%)

1) The percentage is a ratio whose second term is 100
   5/100 = 5 %
2) We represent the percentage by %
3) 100 % means or represents 1
4) To convert or change any number to a % we multiply by 100
5) To change from % into decimal or fraction we divide by 100



Study hard :

1/3 = 33 1/3 %

2/3 = 66 2/3 %

Complete the following:

1) 15% - 0.15 = …………………
2) 1 – (35% + 47%)= ……………………
3) 7/20 = ……………… %
4) 0.35 + 9/20 = …………….. %
5) 1- ¾ = ………………….%

6) 1- 25 % = ...

7) 7) If x/5 = 10 % Then x= ....

8) 3.5 ÷ .... = 100 %

9) ¾ ÷ .... = 100 %

10) 2/3 x ....= 100 %

11) ¼ : 1 = ...%

Choose the correct answer:

1) 1 – (35 % + 0.65 %)= ....
(zero – 0.5% - 0.5)

2) 0.35 + 9/20 = ...
(44 %- 55 %- 80%- 90 %)

3) 30 % + 2/5 = ... (70-7-0.7)

4) 1 ¼ = ... % (125- 150 – 175)

Change into %:

1) 3/8 = ... 2) 2/3=............... 3) 5/7=............

4) ¾ = ... 5) 1/8 = ... 6) 6/25=...........

7) 0.42=............. 8) 0.6=.............. 9) 1.5=..............

Change into :

Decimal

8 % = ...

18 % = ...

25 % = ...

Fraction

50 % = ...

25 % = ...

30 % = ...

Complete:

1) 25 % of 5 L.E = ... L.E
2) 12 % of 25 L.E= ....L.E
3) 3) 37.5 % of 400 m = ...m
4) 7 % of ....= 147
5) 4 % of .... = 24
6) 15 % of .... = 75
7) 45 % of 200 Kgs = ...





Some problems on the percentage

1) Ashraf has L.E 500 , he spent L.E 300
   a) What does he spend in %
   b) What does he save in %

2) 8 % of the workers in a factory are absent. Find the total number of workers in the factory given that 24 are absent.

3) A piece of cloth of 10 meters long is put in water. It shrank by 5 % from his original length. Find the length after shrinking.

4) The length of a road is 120 Km, it is wanted to pave the road in three months. If 42 % in the 1^{st} month , 28 % in the 2^{nd} month . How many Kms will be paved in the 3^{rd} month?

5) If the percentage of the succeeded pupils in an exam in a school is 85 % . calculate the % of failure and put the % of succeeded pupils and failure in the form of fraction in the simplest form.

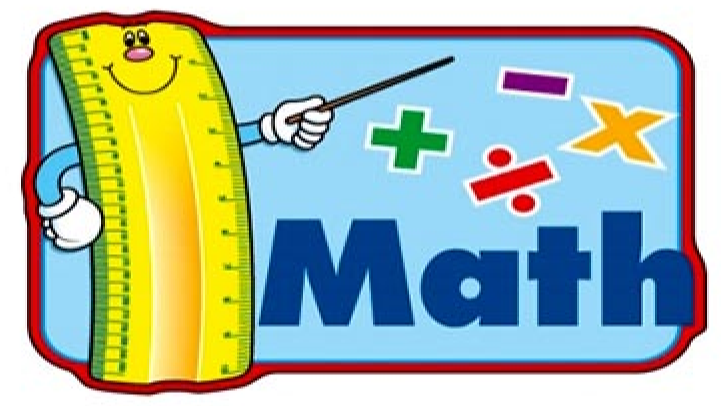


6) If 12 % of a number is 150. What is this number?

7) The monthly salary of an employee is L.E 450, if he saves L.E 54 monthly. Find the percentage of his saving.

8) The percentage of absent pupils in a school one day was 4.5 % , if the number of absent pupils was 36. Find the total number of pupils.

9) The number of pupils in a school is 720 . 7.5 % of them were absent. Find the number of present pupils.





Application on the percentage

The profit means: selling price > cost price

Then the profit = S.P - C.P

The profit % = P./ C.P X 100

The loss means: C .P > S.P

Then the loss = C.P – S.P

The loss % = L. / C.P X 100

The cost price = buying price + any expenses (like maintenance- transportation,)

Note:

Original price, Registered price, Market price, Written price } All means the price before discount



Profit and loss

1) Mohamed paid L.E 1000 for a car . He sold it for 12000, Find :

a) His profit

b) His percent of profit.

....

....

....

2) Find the loss percent of a ratio that costs L.E 350 and sold for L.E 280

....

....

....

3) A merchant sold a TV.Set for L.E 9900 with profit 10 % . Find :

a) The cost price

b) How much should be sell it to get 15 % profit?

....

....

....



4) Find the cost price and selling price of some goods. If 20 % profit is made and 32 pounds are gained.

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………

5) A merchant bought goods for L.E 2760. He spent 40 L.E. for transportation. He sold it with 15 % loss. Find the selling price

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………





Discount

1) A trader gives 25 % discount in a sale: A woman paid L.E 45 for dress.

a) Find the amount of discount in L.E

b) Find the original price

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………

2) A person paid L.E 1584 at a TV. Set after a discount of 12 % from the registered price. What was the price of the TV .set before discount?

……………………………………………………………………………………

……………………………………………………………………………………



……………………………………………………



3) Mother saves L.E 120 by buying a cooker that was reduced 5 % . What was the original price of the cooker ?

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………

4) Samy bought a fridge at a discount of 10 % . He saved L.E 102.

What was the price before discount ?

What is the price after discount?

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………

5) The marked price of a shirt is L.E 75 . Find the percent of discount, if Ahmed paid 42 L.E . for this shirt

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………



Simple Interest

1) Ayman deposited L.E 2000 in a bank with interest of 10 % yearly. Find the total amount that Ayman got at the end of the year.

……………………………………………………………………………………
……………………………………………………………………………………
………………………………………………………

2) Ahmed deposited L.E 1800 in a bank with a simple interest of 10 % yearly. Find Ahmed`s total money after a year.

……………………………………………………………………………………
……………………………………………………………………………………

3) A man deposited L.E 20000 in a bank for yearly interest of 8 % . Calculate the total capital at the end of the year. If he deposited the total capital in the same bank. Find the capital at the end of the second year .

……………………………………………………………………………………
……………………………………………………………………………………
………………………………………………………

4) Nagi deposited L.E 4000 in a bank with an interest of 11 % yearly. Find the total amount that Nagi got at the end of one year .

……………………………………………………………………………………

……………………………………………………………………………………

…………………………………………………

5) A man deposited L.E 400 in a bank for one year with a simple interest of 15 % yearly. Find the total sum of money at the end of the year.

……………………………………………………………………………………

……………………………………………………………………………………

…………………………………………………





Exam on Unit Two

1) Complete the following :

a) If 7 .6 are two quantities of the same kind then 7/6 is called ………………………..

b) The numbers 3 , 9 , ……………. .12 are proportional .

c) If 5/3 = 30/x , then x = …………………………….

d) If the ratio between the measures of the angles of triangle is 1:2:3 then the measures of angles of that triangle are ……….. , …………… , …………………, ……………………… respectively.

e) A machine produces 500m of material in 2 hours and half. So the rate of its production equals …………..m/hour.

2) Choose the correct answer:

a) 7.5 pounds: 1500 piaster = ………………

(1:300 or 3:5 or 1:2 or 1:20)

b) If the length in drawing 2cm and the length in reality 6m , then the drawing scale equals …………………………

(1:3 or 1:30 or 1:300 or 300:1)



c) A tractor ploughs 15 feddan in 5 hours, it ploughs ……………. In 4 hours.

(10 or 5 or 9 or 12)

d) 25/ 200 = …………… % (12.5 orr 25 or 8 or 5)

e) If a : b = 3: 5 and b:c = 2:5 then a:b:c =

…….. :………… : ……………

(3:5:5 or 3:2:15 or 6 :10:25 or 15:1:25)

3)

a) If the ratio between the length of two pieces of clothes is 4 : 7 and the length of first pieces 32m. find the sum of lengths of the two pieces.

b) If the ratio of success in grade five was 91% and the number of failed pupils are 18 pupils. How many pupils succeeded?

4)

a) Find the value of X if 5× (X+2)=25

b) Alaa and ayman started a commercial business. Alaa paid L.E. 1200 an Ayman paid L.E. 1600, at the end of



the year the net profit was L.E. 490. Find the share of Alaa and Ayman from the profit.

c) A piece of rectangular land its perimeter 360m and the ratio between its dimentions equals 3 : 2 . find the area of the land.



Unit(3)

Geometry

Shape	Side	Angle	Diagonal	Picture
Square	all sides are equal in length	Has 4 right angles	Equal, perpendicular and bisect each other	
Rectangle	Each two opposite sides are equal and parallel //	Has 4 right angles	Equal, not perpendicular and bisect each other	
Rhombus	Has 4 equal sides and two adjacent sides are equal in length		Not equal, perpendicular and bisect each other	
Parallelogram	each two opposite sides equal and parallel	each two opposite angles are equal in measure , the sum of any two consecutive angles = 180°	Not equal or perpendicular (⊥) but bisect each other	



Exercise

1- Choose the correct answer from the given ones :

(a) The two diagonals are perpendicular and equal in length in ....

(rectangle *or* square *or* parallelogram *or* rhombus)

(b) The two diagonals of the rectangle are ....

(perpendicular *or* equal in length *or* perpendicular and equal in length *or* parallel)

(c) The two diagonals of the square are ....

(just perpendicular *or* just equal in length *or* perpendicular and equal in length *or* not equal in length and not perpendicular)

(d) The parallelogram in which one angle is a right angle is called ....

(a square *or* a rectangle *or* a trapezium *or* a rhombus)

(e) A parallelogram in which its diagonals are perpendicular and not equal in length called a ....

(rectangle *or* rhombus *or* trapezium *or* square)

(f) The parallelogram in which one angle is a right angle and two adjacent sides are equal in length is called ....

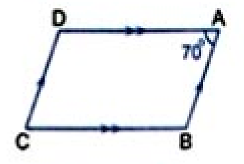
(a square *or* a rectangle *or* a trapezium *or* a rhombus)

(g) The parallelogram in which two adjacent sides are equal in length is called .... (a square *or* a rectangle *or* a trapezium *or* a rhombus)

(h) In the opposite figure :

ABCD is a parallelogram ,

m (∠ A) = 70° , then m (∠ B) = ...



(110° *or* 90° *or* 60° *or* 70)

2- Complete the following due to what you have studied about the properties of geometrical shapes :

(a) The four sides are equal in length in each of .... and ....

(b) The two diagonals are equal in length in each of .... and ....

(c) The two diagonals are perpendicular in each of .... and ....

(d) The four angles are right in each of .... and ....

(e) The opposite angles are equal in measure in each of .... , ... , ... and ....

(f) The two diagonals bisect each other in each of .... , ... , ... and ....

(g) The sum of measures of the two consecutive angles equals 180° in each of .... , ... , ... and ....

3- Complete the following :

(a) In the parallelogram , the sum of measures of any two consecutive angles = ...°

(b) In a parallelogram , each two opposite sides are .... and .... in length.

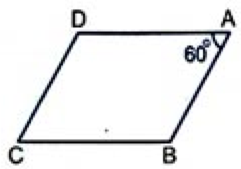
(c) A parallelogram is a rhombus when its two diagonals are ....

(d) The rhombus is a square if .... are equal in length.

(e) If one of the angles of a parallelogram is right then it will be called ....

(f) If two adjacent sides in a parallelogram are equal in length and its diagonals are perpendicular then it is called ....

(g) In the opposite figure :

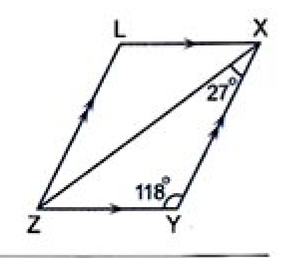


ABCD is a parallelogram , m (∠ A) = 60° ,

then m (∠ B) = ...°

(h) The rhombus whose one of its angles is right is called ....

4- In the opposite figure :

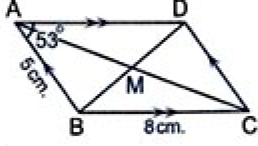


XYZL is a parallelogram in which :

m (∠ Y) = 118° and m (∠ YXZ) = 27°

Find : m (∠ L) and m (∠ LXZ)

5- In the opposite figure :



ABCD is a parallelogram in which :

AB = 5 cm. , BC = 8 cm. ,

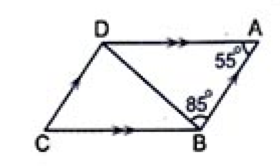
m (∠ A) = 53° , without using geometrical instruments



Find : (1) m (∠ ABC)

(2) The length of each of $\overline{AD}$ and $\overline{DC}$

6- In the opposite figure :



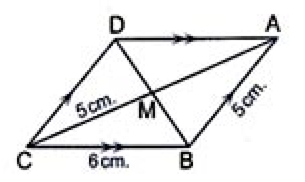
ABCD is a parallelogram in which :

m (∠ A) = 55°

, m (∠ ABD) = 85°

Find : m (∠ C) , m (∠ DBC)

7- In the opposite figure :



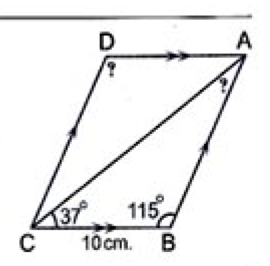
ABCD is a parallelogram in which AB = 5 cm. ,

BC = 6 cm. , MC = 5 cm. ,

Without using geometrical instruments.

Find : The perimeter of Δ ADC

8- In the opposite figure :



ABCD is a parallelogram

In which m (∠ B) = 115° , m (∠ BCA) = 37°

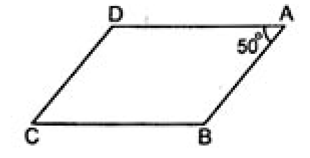
, CB = 10 cm.

Find : m (∠ D) , m (∠ CAB) and length of $\overline{AD}$

9- ***Complete each of the following :***

[a] The two diagonals are equal in ………… and …………

[b] In the opposite figure :



ABCD is a parallelogram , (∠ A) = 50°

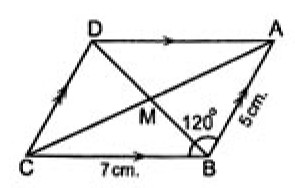
, the m (∠ B) = ………… °

[c] The rhombus is a parallelogram in which two adjacent sides are …………

[d] A parallelogram in which its diagonals are perpendicular and not equal in length called. …………

[e] The shape that the two diagonals are perpendicular and equal in length is …………

10- ***In the opposite figure :***



ABCD is a parallelogram in which

AB = 5 cm. , BC = 7 cm. ,

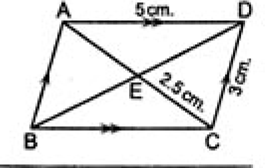
m (∠ ABC) = 120°

Without using geometrical instruments

Find : m (∠ ADC) ,

the length of $\overline{DC}$ and the length of $\overline{AD}$

11- ***In the opposite figure :***



ABCD is a parallelogram in which : CD = 3 cm.

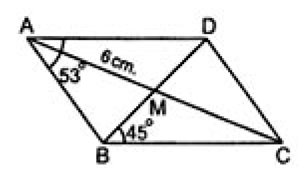
, EC = 2.5 cm. , AD = 5 cm.

Find The length of each of : $\overline{AB}$, $\overline{BC}$ and $\overline{AC}$

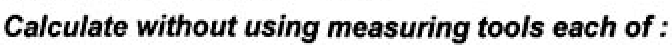
12- **[a]** A map is drawn for the Suez Canal with a scale 1 : 500 000 , if the length of the canal on the map is 34.6 cm.

Calculate its real length in kilometres.

[b] ***In the opposite figure :***



A parallelogram in which , m (∠ BAD) = 53° ,



m (∠ DBC) = 45° , AM = 6 cm.

Calculate without using measuring tools each of :

(1) m (∠ ABD)   **(2)** m (∠ ADC)   **(3)** AC

The Visual Patterns

1 Discover the pattern in each case of the following and describe it then complete its repetition twice :

(a) !!??!!?? ....

(b) ....

(c) ....

(d) ....

(e) ....

(f) ....

(g) ....

2 Discover the rule complete the following :

(a) ....

(b) ....

(c) ....

(d) ....

(e) ....

(f) ....

The Volume

Study hard:

1- The solid : any object occupies a room in the space
2- The volume: is the number of units which a solid consists of.
3- The cubic centimeter: is the volume of a cube of edge length 1cm and denoted by cm^3
4- The cubic decimeter: is the volume of a cube of edge length 1dm and denoted by dm^3
5- The cubic meter: is the volume of cube of edge length 1m and denoted by m^3
6- The cubic millimeter: is the volume of a cube of edge length 1mm and denoted by mm^3
7- The edge : is the line segment resulted from the intersection of 2 faces.



The volume of Cuboid

1) Its volume of the cuboid = L x W x H

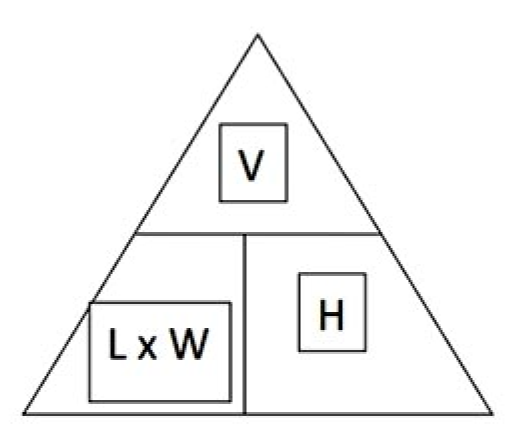
= base area x H

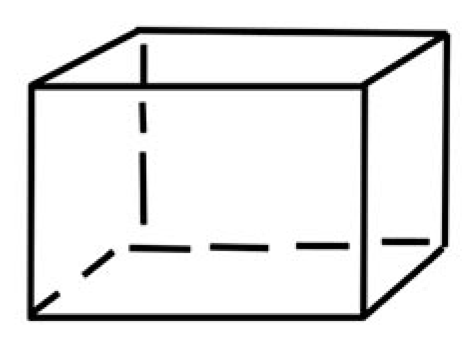
The volume of cuboid = the product of its three dimensions.

2) Base area $=\frac{V}{H}$

3) Height $= \frac{V}{(L \times W)}$

Note: the number of pieces$=\frac{Large\ V.}{Small\ V.}$





Exercises

1- A cuboid with dimension 3,6,10 cm find its volume .
2- A box in the shape of cuboid with squared base of side length 7cm and height 5cm. find its volume.
3- Find the volume of a cuboid if its base area is 81 cm^2 and of height equals 10cm.
4- A cuboid of volume 560 cm^2 if its base of dimensions are 8cm and 7cm. find the height
5- The volume of a box 220cm^3 if its base area 55 cm^2 find the area of the base.
6- The volume of a cuboid is 360cm^3 if its height is 90cm. find the area of the base.
7- The base of a cuboid with a squared base of perimeter 24cm. Find the volume of the cuboid if its height is 8cm .
8- A building worker used 500 bricks to build a wall Calculate : The volume of the wall in m^3 if the bricks is in the shape of a cuboid of dimensions 25cm, 12cm and 6cm
9- How many cubic centimeter are needed to construct a cuboid of dimensions 6.5cm, 13cm, and 10cm



10- Which is greater in volume: A cuboid with dimensions 70cm, 50cm and 30cm or a cuboid with base area = 2925 cm^2 and height = 35cm

11- Which is greater in volume a cuboid with dimension 4cm,5cm and 7cm OR a cuboid with base area 16cm^2 and height 9cm then Find the difference.

12- 8100 cm^3 of water are poured in a cuboid – shaped vessel with a squared base of side length 25cm Find the height of the water in the vessel

13- A box in the shape of cuboid its internal dimension are 30, 20, and 15cm was filled with pieces of soup with dimensions 6, 5, and 3cm how many pieces of soup inside the box.

14- A swimming pool with internal dimensions 30, 15 and 2m. 405 m^3 of water are poured into it Find

a) The height of water in s.pool

b) The volume of water which is needed to fill the pool completely.

15- The sum of all dimensions of a cuboid is 48cm and the ratio among the length of its dimensions is 5: 4 : 3 find its volume.



16- The base of a cuboid is a rectangle whose perimeter = 40 cm and the ratio between its length to its width = 3 : 2 Find its volume if its height is 10cm

17- Find the price of the sand which fills a bed of a truck in the shape of a cuboid its inner dimensions are 2.5m, 1.6m and 0.7m given that the price of one m^3 of sand is L.E. 7.75





Revision about the cuboid

Complete:

1. A cubic centimeter is the volume of a cube with edge length .... m.m and denoted by ....
2. In the cuboid each 2 opposite faces are .... and equal in ....
3. In the cuboid each face is ....
4. The volume = ... X.................
5. The volume of the cuboid = ...x ....x...............
6. The base area = $\frac{\dots\dots}{\dots\dots}$
7. The cuboid has .... vertices, ...edges , ... Faces
8. A cuboid whose volume 400 cm^3 and its base dimensions are 8cm, 5cm, then its height = ...cm

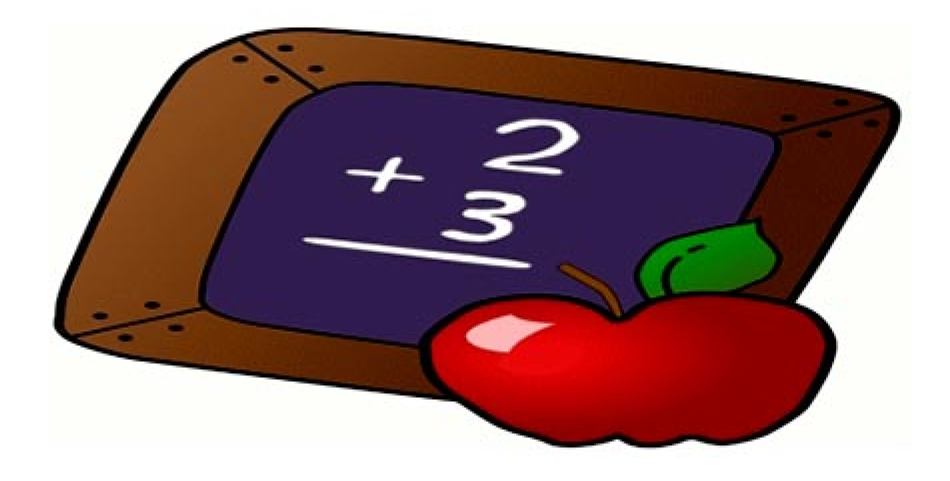
Choose the correct answer:

1. A cuboid with volume 2700cm^3 and its square base is of side lengths 3cm then its height is ....
(300cm^2,3cm^2,30cm^3,300cm)



2.The volume of a cuboid whose dimensions are 2cm,3cmand5cm =...........cm^3 (10,25,30,50)

A cuboid with volume 800 cm^3 if its height is 8cm then its base area = ……………… (100cm, 100cm^2, 50cm^2)



2) The volume of a Cube

Its volume = side x itself x itself = S x S XS

= edge x edge x edge

How to find the side length of the cube:

1. S.L $=\frac{P}{4}$
2. S.L $=\sqrt{area}$
3. S.L $=\frac{SUM\ OF\ EDGES}{12}$
4. S.L $=\sqrt[3]{volume}$

The cube has 8 vertices , 12 equal edges and 6 equal faces each in the shape of square.



Some Exercises

1. A cube with edge length 5cm find its volume
2. A cube with base perimeter 24 cm find its volume
3. A cube with side length equals the side length of an equilateral triangle with perimeter 15 cm find the volume of the cube
4. A square with one face area $64cm^2$ find its volume
5. The sum of edges of a cube is 72cm find its volume
6. A cube with volume $125cm^3$ find its area
7. A cube and a cuboid have the same volume if the dimensions of a cuboid are 4cm ,2cm and 1cm find the length of cubes edge
8. A cube of cheese of edge length 15cm it is wanted to be divided into small cubes each of edge length 3cm calculate the number of these small cubes
9. Which is greater in volume a cube of edge length 10cm or a cuboid with dimension 7cm ,10cm and 12 cm and find the difference between the 2 volumes
10. A cuboid –shaped box of inner dimensions 64cm ,56cm and 40cm its filled with acubic –pieces of soap of edge length 8cm find the number of pices.

(Revision)

Complete:

1) The volume of the cube = ….. x ….. x ……
2) If the sum of length of edges of a cube is 6o cm then its volume = …….
3) If the total area of a cube = 24 cm^2 then its volume = ……cm^3
4) A cube with volume 27 cm^3 then its base area is ……. cm^2
5) A metalic piece in the shape of a cuboid with dimensions 4 cm , 6 cm , 9 cm
6) If the dimensions of the cuboid are equal in length then it is called …..
7) The cube has ….. vertices , …….edges , …..faces each is in the shape of ……





The Capacity

- The capacity is the volume of the liquid
- The capacity is the volume of the inner space of a hollow solid.

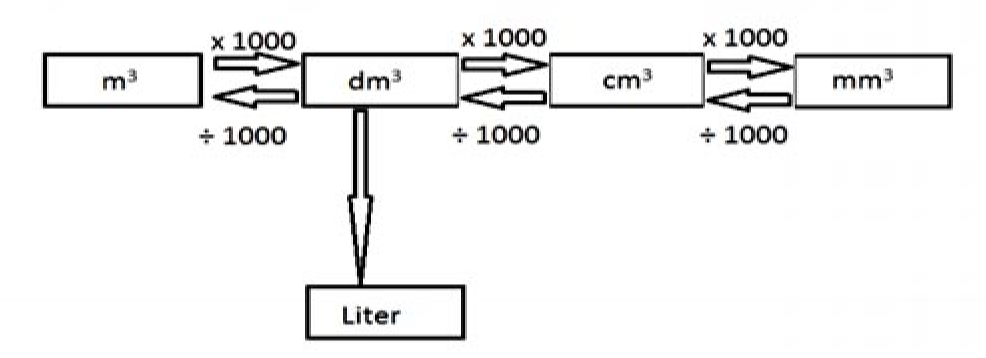
Note V.Imp.

1) The cm^3 is the unit of measuring volume
2) The liter is the unit of measuring capacity
3) Liter = d=$1000cm^3$=1000ml
4) To change

volume ÷ 1000 → Capacity

Capacity × 1000 → volume

Notes that:



Exercise

1) **Complete**

a) $3m^3$ = ……….. dm^3	l) 800 cm^3= ……….. dm^3
b) 650 dm^3=………..m^2	m) 17 cm^3 = ……….. mm^3
c) 0.8 cm^3 =……….. mm^3	n) 14 mm^3= ……….. cm^3
d) 4.3dm^3 = ……….. cm^3	o) 3.2L =….. dm^3….. cm^3
e) 0.43 dm^3 = ……….. cm^3	p) 2500 $cm^{3=}$ ………..L
f) 3.45ml = ………..L	q) 865L = ……….. ml
g) ………..L=7500 cm^3	r) 4L=….. dm^3 =….. cm^3
h) 1L=1cubic ………..	s) 3870 cm^3= ……….. dm^3
i) 9000 cm^3= ………..L	t) 2 m^3 = ……….. dm^3
j) 7000 dm^3= ……….. m^3	u) 9140 dm^3 = ………..Liters
k) 0.8 m^3= ……….. dm^3	v) 865L= ……….. m^3

2) A box of milk of capacity 2 liters and another box of capacity 200 milliliter how many boxes are needed to be filled with the milk of the 1st box?
Remember liter = 1000cm^3 =1000 milliliter

3) A swimming pool in the shape of cuboid whose internal dimensions are 40m, 30m, and 1.8 m. find its capacity in liter.



4) A container has 12 liter of honey ,it is wanted to put the honey in smaller vessels each of capacity 400 cm^3.

5) A vessel in the shape of a cube with edge length 15 cm is filled with honey.

a) Calculate the capacity of the vessel.

b) If the price of one liter is LE 8 calculate the price of honey .

6) A fish tank in the shape of cuboid with dimensions 65 cm , 30 , and 24 cm

a) What is the volume of the tank in cubic cm ?

b) If 15.6 liter of water are poured into the tank , how deep will the water be .

<u>Note: deep = height</u>

7) A cubic with squared base of side length 20 cm , if 10 liter of oil are stored in it . Find the height of the oil in the tin.

8) 2.5 dm^3 of medicine are needed to be bottled. If each bottle is of capacity 100cm^3. Find the number of needed bottles.

9) A patient takes a spoon of medicine of capacity 3 ml – daily in the morning and evening after how many days does the patient take 240 cm^3 from this medicine.



10) A container in the shape of cuboid its base perimeter = 8 m , and its height = 3m ,if the ratio between the dimensions of the base is 3: 5 . find the capacity of the tank in liters .



Unit 4 Statistics

The kind of statistical data :

1-Discriptive

Address –e-mail-hobbies-name-stage-grade

2-Quantitative

Age-date of birthday-telephone-number- weight –height

Complete:

a) The kind of statistics data are………,…………..

B) The birth place is…………..data

c)The age is……….. data

d)The blood type is……….data

e)The length is ………..data

Choose the correct answer:

a) The following data are descriptive except the ……..
(Giza2011)

(Favorite food or social case or birth place or weight)

b)…….is one of the descriptive data

(the weight or the mark of student or the favorite color or the tallness)

c)The following data are quantitative except..........(El-Monofia 2011)

(Tallness or weight or nationality or age)

d) The following datd are descriptive except......... (El-Dakahlia 2011)

(Colours or age or blood species or birth place)



Collecting the descriptive Statistic data the Tally

1)Mr. Edward applied the previous survey to 40 pupils of a class to know their favorite sports:
Their responses were as the following:

Football-Jogging-Handball-Volleyball-Football-Basketball-Jogging

Aerobics- Volleyball- Aerobics- Handball- Handball-Basketball-

Football- Jogging- Basketball- Football- Volleyball-
Aerobics- Handball- Football- Football- Handball-
Football- Jogging- Basketball- Volleyball- Basketball-
Football- Football- Volleyball- Handball- Football-
Jogging- Handball- Football- Volleyball- Jogging-
Handball- Volleyball.

You notice that the previous descriptive data in this unarranged form can`t help us to take any decision or get any



information ,so we have to tabulate this data in a tally frequency table as we studied in the last year as follows:

Sport	Tally(strokes)	No. of pupils(frequency)
Football	卌卌|	11
Volleyball		7
Handball		8
Aerobics		3
Basketball		5
Jogging		6
Total	40	

Collecting the quantitative statistic data.

Remarks:

*The difference between the maximum and the minimum value of the given data is called the range of this data.

*The difference between the upper limit and the lower limit of the set is called the length of this set .

*number of sets = $\frac{\textit{the range}}{\textit{the length of the set}}$

2)The following data shows the marks which 54 pupils got in math, where the maximum marks is 60 marks:

42	41	43	27	$37\frac{1}{2}$	48	45	58	24	43	50
48	54	36	59	45	40	45	51	35	$39\frac{1}{2}$	46
38	40	36	45	35	30	20	36	40	50	54
47	47	47	46	39	$44\frac{1}{2}$	42	$42\frac{1}{2}$	56	48	45
29	55	30	25	34	42	32	51	28	44	



Form a frequency table of sets using the sets:

(20-, 25-, 30-, .and 55-), then answer the following questions:

1-how many pupils got less than 30 marks?

And what is their percentage?

2- How many pupils got 50 marks or more?

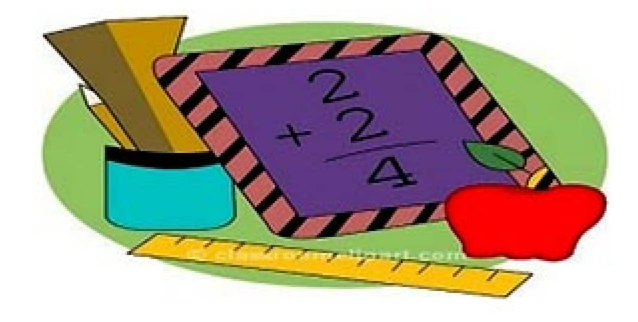
And what is their percentage?



Exercise about collecting quantitative statistics data

Complete

1-The difference between the minimum and
2-maximum values of the given data are called ....
3-The range= ....- ....
4-If the value of a frequency distribution lies between (30, 90), then the range of this distribution = ...
5-The range of the value: 5, 2,9, 6, 6, and 4 is ....
6-If the marks of five pupils in one of the tests are : 29, 33, 59,40, and 36, then the range of this marks is equal to.............
7-If 78 is the greatest individual of a set and the rang = 36 then the smallest individual of this set equals ....





Choose the correct answer:

1-The opposite data are quantitative except….
(tallness , weight , nationality , age)

2-The opposite data is descriptive except ……
(colures , age , blood species , birth place)

3-……. Is one of the descriptive data :
(The weight , the marks of students , the favourite colour , the tallness)





Representing the statistics data by the frequency curve

Center of the set = $\frac{lower\ limit+upper\ limit}{2}$

<u>Some exercises</u>:

1)The following table shows the marks of 100 puplis in science in one of the months:

Marks	10-	20-	30-	40-	50-	Total
No.of pupils	5	15	45	25	10	100

a)Draw the curve of frequency of that distribution.

b)How many pupils have got less than 40 marks?

2) The following data represents the marks in mathematics test for students in one classroom:

Sets	0-	10-	20-	30-	40-	50-
Frequency	6	10	15	20	8	4

a) Draw the frequency curve for this distribution.

Complete:

1-The number of students whose marks are less than 20=……….

2-The number of students whose marks are 40 and more=………



3) On the orphan day a group of students donated amounts of money in pounds shown in the following table:

Money in pounds	3-	5-	7-	9-
Number of students	5	8	10	7

1) Draw the frequency curve for this frequency distribution.

2) What is the number of students who donated by 7 pounds and more



